

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Group Art Unit 3105

In re

Patent Application of

Flaherty et al.


Serial No. 08/878,433

Filed: June 18, 1997

Examiner: W. Ackerman

AEROSPACE HOUSING AND SHAFT
ASSEMBLY WITH NONCONTACTING
FACE SEAL

I, Kristin L. Shimeck, hereby certify that this
correspondence is being deposited with the US Postal
Service as first class mail in an envelope addressed to
Assistant Commissioner for Patents, Washington, D.C.
20231, on the date of my signature.


Signature


Date of Signature

DECLARATION UNDER 37 C.F.R. §1.132

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

I, David A. Packer, declare as follows:

1. I currently reside at 10 Aberdeen Ct., Buffalo Grove,
Illinois 60089.

2. I have a Bachelors Degree in Mechanical Engineering from
the Purdue University, which I received in 1979.

3. I also have a Masters Degree in Business Administration
from Lake Forest Graduate School of Management, which I received
in 1995.

4. From 1979 through 1981, I was a project engineer at
Gould, Inc.

5. I am currently employed by Rexnord Corporation Seal
Operation, a corporation having its principal place of business
at 634 Glenn Avenue, Wheeling Illinois, 60090, and have been so

employed since 1981. During this time, I have been involved in the design and development of various seal designs.

6. In 1997, I was approached by Andrew Flaherty regarding a new design for a hydropad seal to be used in an aerospace seal assembly in low pressure environments. This new design is the subject of the above-identified patent application.

7. When the idea of utilizing the claimed seal design in an aerospace environment was first presented to me by Mr. Flaherty, my initial thought was that it would not work. This perception was based upon the fact that the general thought in the seal industry in 1997 was that hydropad face seals required an air pressure greater than the sealed fluid pressure in order to prevent leakage of the sealed fluid. Further, with pressures lower than standard atmospheric, it was believed that hydropad seals could not generate the required lift to obtain adequate separation of the seal rings during the full range of operating conditions.

8. Much to our surprise, we were able to develop a seal design that worked well in low pressure environments. In fact, the seal design disclosed in the pending application has successfully worked at pressures as low as 1.0 psia, which corresponds with about 60,000 ft of elevation.

9. It was surprising to me, as someone of ordinary skill in the art, that a hydropad seal could work at such low pressures.

10. I further declare that all statements made herein of my own knowledge are true, and that all statements made on

information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code, and that such willful statements may jeopardize the validity of the above-referenced application or any patents issuing therefrom.

Date 12/21/98


David A. Packer

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DECLARATION UNDER 37 C.F.R. §1.132

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

I, Andrew L. Flaherty, declare as follows:

1. I currently reside at 2003 Parkview Circle East, Hoffman
Estates, Illinois 60195.

2. I have a Bachelors Degree in Engineering from the
University of Iowa, which I received in 1990.

3. I also have a Masters Degree from the School of
Mechanical Engineering at Georgia Tech, which I received in 1992.

4. From 1992 through 1993, I was a research assistant at
the School of Engineering at Georgia Tech. This job involved
researching various types of seal designs.

5. I am currently employed by Rexnord Corporation Seal
Operation, a corporation having its principal place of business

at 634 Glenn Avenue, Wheeling Illinois, 60090, and have been so employed since 1994.

6. I was and still am the Project Leader of the project relating to the aerospace housing and shaft assembly, which is the subject of the present invention.

7. I am an inventor in the above-identified patent application.

8. When the idea of utilizing the claimed seal design in an aerospace environment was first conceived, my initial thought was that it would not work. This perception was based upon the fact that the general thought in the seal industry in 1997 was that hydropad face seals required an air pressure greater than the sealed fluid pressure in order to prevent leakage of the sealed fluid. Further, with pressures lower than standard atmospheric, it was believed that hydropad seals could not generate the required lift to obtain adequate separation of the seal rings during the full range of operating conditions.

9. My initial reaction was reinforced when I talked to other seal design engineers who have similar experience to my own. More specifically, I spoke with Dave Packer, Engineering and Marketing Manager for Rexnord Corporation Seal Operation and an engineer with over 10 years of engineering experience in seal design, and Warren Corrado, Product Specialist for Rexnord Corporation Seal Operation and an engineer with about 10 years of engineering experience in seal design, regarding the feasibility of using the claimed hydropad seal for low pressure environments.

Both of these individuals were skeptical that the claimed design would work properly.

10. Much to our surprise, we were able to develop a seal design that worked well in low pressure environments. In fact, the seal design disclosed in the pending application has successfully worked at pressures as low as 1.0 psia, which corresponds with about 60,000 ft of elevation.

11. It was surprising to me, as someone of ordinary skill in the art, that a hydropad seal could work at such low pressures.

12. I further declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code, and that such willful statements may jeopardize the validity of the above-referenced application or any patents issuing therefrom.

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Andrew L. Flaherty
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Signature


Date of Signature

DECLARATION UNDER 37 C.F.R. §1.132

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

I, Warren Corrado, declare as follows:

1. I currently reside at 1129 South Fourth Avenue, Libertyville, Illinois 60048.
2. I have a Bachelors Degree in Mechanical Engineering from Marquette University, which I received in 1984.
3. From 1984 through 1987, I was a project engineer at Rexnord Seal Operation, a corporation having its principal place of business at 634 Glenn Avenue, Wheeling Illinois, 60090.
4. From 1987 through 1993, I was the Assistant Engineering Manager at Rexnord Seal Operation.
5. From 1993 through the present, I have been the Product Specialist at Rexnord Seal Operation. During this time, I have been involved in the design and development of various seal designs.

6. In 1997, I was approached by Andrew Flaherty regarding a new design for a hydropad seal to be used in an aerospace seal assembly in low pressure environments. This new design is the subject of the above-identified patent application.

7. When the idea of utilizing the claimed seal design in an aerospace environment was first presented to me by Mr. Flaherty, my initial thought was that it would not work. This perception was based upon the fact that the general thought in the seal industry in 1997 was that hydropad face seals required an air pressure greater than the sealed fluid pressure in order to prevent leakage of the sealed fluid. Further, with pressures lower than standard atmospheric, it was believed that hydropad seals could not generate the required lift to obtain adequate separation of the seal rings during the full range of operating conditions.

8. Much to our surprise, we were able to develop a seal design that worked well in low pressure environments. In fact, the seal design disclosed in the pending application has successfully worked at pressures as low as 1.0 psia, which corresponds with about 60,000 ft of elevation.

9. It was surprising to me, as someone of ordinary skill in the art, that a hydropad seal could work at such low pressures.

10. I further declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under

§1001 of Title 18 of the United States Code, and that such willful statements may jeopardize the validity of the above-referenced application or any patents issuing therefrom.

Date 21 DEC '98

Warren Corrado
Warren Corrado